



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION OF

Confirmation No.: 8367

GIROUARD et al.

Group Art Unit: 3611

Appln. No.: 09/472,134

Examiner: Anne Marie Boehler

Filed: December 23, 1999

Title: SNOWMOBILE

October 22, 2003

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REPLY BRIEF

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I. INTRODUCTION

This Reply Brief is being filed within two months of the Examiner's Answer mailed September 10, 2003. This Brief responds to the new points raised by the Examiner's Answer, updates the status of the related appeal, and presents an updated version of the claims on appeal. It is noted that a Request for Oral Hearing was previously filed.

A. Updated Statement of Related Appeals and Interferences

Related U.S. Application Serial No. 09/877,188 was indicated as being on appeal in Appellants' brief, but is now no longer on appeal. In response to the Appeal Brief in application 09/977,188, prosecution was reopened. During a personal interview for the related application conducted on September 10, 2003, a prior art vehicle and a vehicle designed in accordance with this invention were displayed as an exhibit by one of the inventors, Bruno Girouard. During that interview, many of the pending claims in the related application were indicated as being allowable over the applied prior art. The vehicle display was also attended by Examiner Boehler, who is handling the present application.

B. The Status of the Claims

Claims 1-49, 55, 57-60, 64-68, 73, 77-88, 90 and 92 are pending, all of which stand rejected and are the subject of this appeal. Claims 50-54, 56, 61-63, 69-72, 74-76, 89, and 91 have been canceled. The Amendment Under 37 C.F.R. §1.116 filed May 14, 2003, was denied entry. Another Amendment Under 37 C.F.R. §1.116 was filed June 11, 2003, which was entered as indicated in the Advisory Action mailed June 26, 2003. A copy of the claims as they presently stand, and which reflects the Amendment filed June 11, 2003, is attached as Appendix A.

II. REPLY

A. The Examiner's Answer Maintains the Improper Reliance on the Examiner's Own Measurements of the Drawings of JPP '681 for the Rejection of Claim 73

In the Appeal Brief, Appellants argued that JPP '681 fails to disclose sideboards disposed at the claimed angle  $\Delta$  of  $-5^\circ$  to  $-10^\circ$ . In her Answer, the Examiner admitted that the reference does not disclose the angle of the footrest. Despite this admission, despite a well-developed body of case law, and in total disregard of the guidelines set forth by M.P.E.P. §2125, the Examiner has maintained her rejection. Improperly, the Examiner continues to rely on her independent measurement of the drawings in JPP '681 even though the reference does not state that the drawings are to scale. Since the Examiner's position is based on her measurement of the drawings, which contravenes accepted law and practice, the Appellants submit that the rejection must be reversed.

As to the toe-holds, which are claimed in combination with the angled sideboards, the Examiner asserts that not a single embodiment of the toe-holds is described or shown in Appellants' original disclosure. The Examiner, however, is wrong. At page 10, lines 3-7, the Appellants describe toeholds disposed above the forward portions of the sideboards upon which the rider's feet rest. The toeholds permit the rider to releasably secure himself to the vehicle. Notwithstanding the Appellants' own disclosure in this application, the Appellants point out that toeholds on snowmobiles are well known in the art. The generically-disclosed toeholds, which original claims 63, 73, and 83 recite, are, therefore, entitled to coverage corresponding to known toeholds at the time the application was filed. Accordingly, the Appellants respectfully submit that the rejection also must be reversed.

The Appellants respectfully point out that the final rejection of claim 73 recited in the Examiner's Answer differs from the November 14, 2002, final rejection, by adding that JPP '681 "also show [sic] upright walls which extend directly vertically above a recessed area in which a rider may wedge his toe to releasably hold the toe in place." (Examiner's Answer: Page 7, last line of section (10).) The response to Appellants' argument further states that JPP '681 "shows a portion 10a, 10b, which overhangs (juts backwardly, as seen in Figures 1 and 9), in a vertical plane above a recessed portion of the body into which the rider's toes would be nested for securement. This rearwardly jutting portion can serve as a toehold for a rider's [sic] when the rider needs additional restraint, such as when transversing [sic] irregular terrain." (Examiner's Answer: Page 9, lines 10-14.)

JPP '681, the translation of which is of record, states that elements 10a and 10b are "nearly vertical upright walls". Thus, it is not understood how the Examiner can insist that vertical upright walls can act as toe holds. This argument is especially inconsistent with Examiner's assertion that the footrests 9 are sloped at an angle of approximately 6 degrees from horizontal. As seen in Fig. 9 of JPP '681, vertical upright wall 10b cannot act as a toehold disposed above a rider's toes in a vertical plane in combination with a sideboard having a forward portion suitable for placement of a rider's foot thereon, the forward portion of each sideboard disposed at an angle with horizontal that is  $-5^{\circ}$  to  $-10^{\circ}$ . There is simply no structure above the sideboard 9 in JPP '681. The only structure, wall 10b, that extends above a recess is in front of the sideboard 9. The recess inclines upwardly, contrary to the claimed sideboard. For a rider to place a toe under wall 10b, the footrest would have to be the upwardly inclined wall.

Moreover, wall 10b in JPP '681 appears to extend at about a 30° angle from vertical, yet is described as being vertically upright. The drawing is inconsistent with the written description and is not accurate. Given this, it is impossible to surmise that the angle of footrests shown is accurate.

JPP '681 simply does not show a combination of right and left sideboards, each sideboard having a forward portion suitable for placement of a rider's foot thereon, the forward portion of each sideboard disposed at an angle with horizontal that is -5° to -10° and right and left toe-holds disposed respectively above the rider's toes in a vertical plane for allowing the rider to releasably secure himself to the snowmobile. As such, JPP '681 cannot anticipate claim 73 under 35 U.S.C. §102(b). The rejection should be reversed, and claim 73 should be allowed.

B. The Examiner's Answer Agrees that One of Ordinary Skill in the Snowmobile Art Would Be Able to Make a Snowmobile that Is Steerable with a Windshield, yet Improperly Maintains that the Disclosed Invention Is Inoperable

As a preliminary matter, the Examiner mentions the conference involving the Quality Assurance Specialist that is referred to in the Brief. It is noted that Paul Bowen, Appellants' counsel at the time, requested and received permission from Examiner Mitchell on April 8, 2003, to include his statements from the conference in the Appeal.

The Examiner's Answer asserts that the disclosure includes a windshield that prevents operation of the steering device and, therefore, that any claim reciting either the steering device or the windshield describes an inoperative invention. However, this has been shown to be untrue. A snowmobile constructed according to this disclosure does in fact operate. The windshield moves with the steering device, which was demonstrated by the inventor during the interview for the related application, which demonstration was attended by

Examiner Boehler. This is also shown by the Handfield declaration, section (48) and exhibits B-J, which show the steering device and windshield arrangement in accordance with the schematic drawings of this application on many actual operational vehicles. The evidence of operable vehicles in accordance with the design parameters disclosed in this application belies this line of reasoning by the Examiner.

In fact, the Examiner even recognizes that one of ordinary skill would be able to make a snowmobile that is steerable. (“Again, the examiner agrees that a skilled artisan would be able to make a snowmobile that is steerable.” Page 13, line 22 – page 14, line 1.) Yet, the Examiner maintains that the disclosure does not give adequate information as to how a skilled artisan would make an operable snowmobile conforming to the claimed features. The Examiner states that “[i]f applicant’s disclosure of the steering member position is erroneous, a skilled artisan reading applicant’s disclosure has very little guidance in making the claimed invention.” (Examiner’s Answer: page 10, lines 17-19.)

Once again, the Appellants respectfully point out that the steering member position is not erroneous. The disclosure explains with specificity the novel positioning of the steering member. Detailed descriptions of the steering member and its novel positioning appear at length throughout the original application. See, for example, page 10, lines 8-28, page 13, lines 4-19, page 14, lines 7-22, which offer various precise parameters by which the steering device is positioned.

One of ordinary skill in the art would recognize how to install a windshield in an operable manner, even close to the steering device. One example is the known configuration of a windshield that turns with the steering device. (See U.S. Patent 5,129,473 assigned to Yamaha Hatsudoki Kabushiki Kaisha previously cited in the Appeal Brief.) Given this fact and the specific description of the positioning of the steering device, Appellants respectfully

submit that the specification discloses an operable embodiment in accordance with the requirements of 35 U.S.C. §112, first paragraph. Thus, the rejection of the claims on this basis should be reversed.

Upon reversal of this rejection, there is no basis for denying approval of the drawing corrections.

C. The Examiner's Answer Does Not Show that the Tunnel and Toeholds Are Inadequately Described by the Entire Disclosure at the Time of Filing

The Examiner's Answer maintains that Appellants did not have possession of the claimed tunnel and toeholds at the time the application was filed.

As to the tunnel, the Examiner agrees that the Canadian priority document, which is the same document as the U.S. provisional priority application, shows a snowmobile embodiment having a tunnel. (Examiner's Amendment: Page 15, lines 7-8.) The Examiner then asserts that a skilled artisan would not have attributed the feature of the embodiment shown in Figure 9 of the Canadian document to the embodiment described in the present application. However, Appellants are not suggesting that somehow a new embodiment be created from the two documents. Appellants are merely exercising their right to use material that is specifically incorporated by reference in the present application. The wholesale exclusion of the material from the Canadian and U.S. documents that are explicitly incorporated by reference is completely unfair and contrary to the case law and the practice guidelines set forth in the M.P.E.P.

Appellants have disclosed a generic frame in this application. They also disclosed a tunnel, as it is conventionally known in the snowmobile art, in the documents incorporated by reference. There is no basis for denying Appellants' the right to use the conventional term "tunnel" in the present application.

As to the toe holds, in the Examiner's Answer, the Examiner suggests that the walls that extend up from the front of the sideboards could have been what was meant by toe-holds in Appellants' original disclosure, but this is an incorrect assumption. The original disclosure states, on page 10, lines 3-7, that:

The rider's feet 146 rest on footrests 134 in footrest position 138 just behind the center of gravity of the vehicle 144. The footrest position 138 is in the location of the arch of the foot of the rider 126 when his feet are placed in normal operating position on the vehicle. Under normal operating conditions, the rider's feet 146 will rest on a forward portion of the sideboards. Preferably, toeholds are disposed above these forward portion and permit the rider to releasably secure himself to the vehicle.

This description could not possibly be directed to upwardly extending walls in **front** of the sideboards, and it is irresponsible to bend the description in such a way as to now suit the new argument presented by the Examiner. The toeholds are described sufficiently under the standards of 35 U.S.C. §112, first paragraph, to adequately show that the inventor was in possession of the invention at the time of filing.

In view of the foregoing, the Appellants respectfully submit that the rejection based on 35 U.S.C. §112, first paragraph, relating to the recited tunnel and toeholds should be reversed as there is adequate support in the original disclosure for these claim terms.

D. The Examiner's Answer Unrealistically Maintains that a Vehicle Designed to Be Ridden Cannot Be Defined by Reference to the Rider

The Examiner asserts that a potential infringer would have to design and build a snowmobile and then place a standard sized person on it, in the standard position, to determine infringement. The Examiner does not believe that the features of Appellants' snowmobile can be extrapolated from the disclosure and drawings with any degree of certainty. Appellants respectfully disagree with the Examiner's assertion.



Given the specific angles, details and relationships of each of the vehicle components described in the specification, this assertion is simply not understood. To Appellants, it appears that the Examiner fails to grasp the underpinnings of the snowmobile design industry, which in fact does use ergonomic parameters, in the form of a standard rider, in designing snowmobiles. So, it would be reasonable, and even expected, for a competitor designing a vehicle to use such a standard rider design tool.

It seems that the basis of the rejection under 35 U.S.C. §112, second paragraph, lies in the Examiner's concern that a competitor will not be able to interpret the design parameters of the claimed snowmobile in order to assess possible infringement. The Examiner, in fact, states that a potential infringer would be forced to design and build the vehicle and then test for infringement using a standard rider. This argument, however, is counterintuitive. It accepts that a potential infringer is able to design and build a vehicle in accordance with the principles disclosed in this application. The fact that the Examiner believes that it would be burdensome to ascertain infringement because a standard rider would need to be placed on the vehicle is not a legitimate basis for a rejection under 35 U.S.C. §112, second paragraph. The method of determining infringement is irrelevant to whether the claims are definite.

The claims use terms that would be readily understood by one of ordinary skill in the art of snowmobile design. As Appellants have repeatedly pointed out, snowmobile designers typically use the parameters disclosed in this application as conventional design tools. The measurements of the design tool, which is the standard rider, are even listed in great detail in the application should there be any question as to the specific values relied upon. So, if the design tools disclosed herein are conventional and the measurements are specifically listed, it is not understood why the Examiner maintains that a competitor will not understand the bounds of the claims.

Appellants believe that this rejection does not comport with the primary purpose of 35 U.S.C. §112, second paragraph, which is to ensure that the scope of the claims is clear so that the public is informed of the boundaries of what constitutes infringement of the patent. (See, MPEP §2173.) One of the three factors in analyzing the definiteness of claim language is the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. The Examiner has completely discounted this essential factor. The claims are definite and provide boundaries that would be well understood. Thus, Appellants respectfully submit that the rejection under 35 U.S.C. §112, second paragraph, should be reversed.

III. The Point of Novelty Is Recognized in the Examiner's Answer, But the Rejections Are Maintained Despite Appellant's Repeated Efforts to Come to Agreement on Acceptable Language

In summary, the Examiner's Answer repeatedly emphasizes one of the points of novelty of this invention (the novelty being evidenced by the lack of prior art rejections), but the Examiner is unwilling to work with Appellants to resolve the language objections. See, for example, the following passages from the Examiner's Answer that summarize the invention in her words:

*Moving the steering position forward allows the engine to be positioned below and behind the steering member, which positions the center of gravity relatively forward and closer to the rider's center of gravity. Most of the other claim features, particularly the recitations of the center of gravity of the snowmobile and the rider, are a result of the particular positioning of the steering member and engine. (Page 10, lines 12-17.)*

*According to appellant's disclosure, the positioning of the steering device is the feature which allows the shifting of weight forward and the advantageous placement for the rider on the vehicle. (Page 11, lines 12-14.)*

*However, the positioning of the steering device is the most important feature of appellant's disclose [sic]. It is one of the few concrete structural features that is described and it is an element which drives the positioning of the other elements of the vehicle. (Page 11, line 21 – page 12, line 3.)*

Appellants have repeatedly tried to respond to the objections and rejections directed to the form of the claim language in ways that would advance prosecution, which has lasted almost four years to date, but to no avail. Appellants have even requested suggestions from the Examiner for claim language that would be satisfactory, again to no avail.

Appellants now appeal to this Honorable Board to promptly reverse these rejections and issue a decision in favor of Appellants. All of the claims are in condition for allowance.

Respectfully submitted,

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Attachment: Appendix A

IV. APPENDIX A – PENDING CLAIMS ON APPEAL

1. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider with a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the snowmobile has a first center of gravity without the rider and a second center of gravity with the rider in the standard position, and

wherein a distance between a vertical line passing through the first center of gravity and a vertical line passing through the second center of gravity is between 0 cm and 14 cm.

2. (Amended) The snowmobile of claim 1, wherein the distance is between 2 and 12 cm.

3. (Amended) The snowmobile of claim 2, wherein the distance is between 4 and 10 cm.

4. (Amended) The snowmobile of claim 3, wherein the distance is between 5 and 7 cm.

5. (Amended) The snowmobile of claim 4, wherein the distance is 5 cm.

6. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider with a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the snowmobile has a first center of gravity without the rider and a second center of gravity with the rider in the standard position, and

wherein a line passing through the first center of gravity of the snowmobile and the second center of gravity forms an angle with horizontal that is between 35 and 90°.

7. (Amended) The snowmobile of claim 6, wherein the angle is between 50 and 90°.

8. (Amended) The snowmobile of claim 7, wherein the angle is between 62 and 90°.

9. (Amended) The snowmobile of claim 8, wherein the angle is 67°.

10. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

a forward-most drive track axle disposed on the frame;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider with a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile; and

wherein a distance between a vertical line passing through the forward-most drive track axle and a vertical line passing through the center of gravity of the rider in the standard position is between 15 and 65 cm.

11. (Amended) The snowmobile of claim 10, wherein the distance is between 25 and 55 cm.

12. (Amended) The snowmobile of claim 11, wherein the distance is between 35 and 55 cm.

13. (Amended) The snowmobile of claim 12, wherein the distance is between 37 and 47 cm.

14. (Amended) The snowmobile of claim 13, wherein the distance is 40 cm.

15. (Amended) The snowmobile of claim 14, wherein the distance is 45 cm.

16. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

a forward-most drive track axle disposed on the frame;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider having a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile; and

wherein a line passing through the forward-most drive track axle and the center of gravity of the rider in the standard position forms an angle with horizontal that is between 41 and 75°.

17. (Amended) The snowmobile of claim 16, wherein the angle is between 45 and 65°.

18. (Amended) The snowmobile of claim 17, wherein the angle is between 50 and 60°.

19. (Amended) The snowmobile of claim 18, wherein the angle is 55°.

20. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support suitable for a standard rider with a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the snowmobile has a center of gravity without the rider, and

wherein a distance between a vertical line passing through the center of gravity of the snowmobile without the rider and a vertical line passing through the center of gravity of the rider in the standard position is between 5 and 55 cm.

21. (Amended) The snowmobile of claim 20, wherein the distance is between 15 and 45 cm.

22. (Amended) The snowmobile of claim 21, wherein the distance is between 25 and 45 cm.

23. (Amended) The snowmobile of claim 22, wherein the distance is between 27 and 37 cm.

24. (Amended) The snowmobile of claim 23, wherein the distance is 30 cm.

25. (Amended) The snowmobile of claim 24, wherein the distance is 35 cm.

26. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;



a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider having a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the snowmobile has a center of gravity without the rider, and

wherein a line passing through the center of gravity of the snowmobile without the rider and the center of gravity of the rider in the standard position forms an angle with horizontal that is between 39 and 79°.

27. (Amended) The snowmobile of claim 26, wherein the angle is between 49 and 69°.

28. (Amended) The snowmobile of claim 27, wherein the angle is between 54 and 64°.

29. (Amended) The snowmobile of claim 28, wherein the angle is 59°.

30. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider with a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the snowmobile has a center of gravity with the rider, and

wherein a distance between a vertical line passing through the center of gravity of the snowmobile with the rider and a vertical line passing through the center of gravity of the rider in the standard position is between 0 and 50 cm.

31. (Amended) The snowmobile of claim 30, wherein the distance is between 10 and 40 cm.

32. (Amended) The snowmobile of claim 31, wherein the distance is between 20 and 40 cm.

33. (Amended) The snowmobile of claim 32, wherein the distance is between 22 and 32 cm.

34. (Amended) The snowmobile of claim 33, wherein the distance is 25 cm.

35. (Amended) The snowmobile of claim 34, wherein the distance is 30 cm.

36. (Thrice Amended) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider having a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the snowmobile has a center of gravity with the rider, and

wherein a line passing through the center of gravity of the snowmobile with the rider in the standard position and the center of gravity of the rider in the standard position forms an angle with horizontal that is between 35 and 84°.

37. (Amended) The snowmobile of claim 36, wherein the angle is between 45 and 75°.

38. (Amended) The snowmobile of claim 37, wherein the angle is between 55 and 70°.

39. (Amended) The snowmobile of claim 38, wherein the angle is 57°.

40. (Four Times Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

a steering device disposed on the frame and spaced forward of the seat such that, when the rider grasps the steering device in the standard position, the rider's torso is tilted toward the steering device and the rider's arms extend toward the steering device with the rider's elbows substantially over the rider's feet;

two skis disposed on the frame and operatively connected to the steering device for steering the snowmobile; and

a footrest disposed below each side of the seat, each said footrest being dimensioned with respect to the seat and the steering device to support the rider's foot thereon,

wherein, for the standard rider in the standard position, the seat defines a seat position, the steering device defines a steering position, and the footrests define a footrest position,

wherein a line passing through the seat position and the steering position forms angle  $\alpha$  with a line passing through the seat position and the footrest position;

wherein a line passing through the footrest position and the steering position forms angle  $\beta$  with the line passing through the footrest position and the seat position,

wherein the line passing through the footrest position and the steering position forms angle  $\gamma$  with the line passing through the steering position and the seat position, and

wherein angle  $\alpha$  is between 63 and 152°, angle  $\beta$  is between 16 and 84°, and angle  $\gamma$  is between 11 and 42°.

41. (Amended) The snowmobile of claim 40, wherein angle  $\alpha$  is between 67 and 112°, angle  $\beta$  is between 41 and 72°, and angle  $\gamma$  is between 22 and 45°.

42. (Amended) The snowmobile of claim 41, wherein angle  $\alpha$  is between 75 and 97°, angle  $\beta$  is between 52 and 67°, and angle  $\gamma$  is between 30 and 41°.

43. (Amended) The snowmobile of claim 42, wherein angle  $\alpha$  is 83°, angle  $\beta$  is 64°, and angle  $\gamma$  is 33°.

44. (Four Times Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the

snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

a steering device disposed on the frame and spaced forward of the seat such that, when the rider grasps the steering device in the standard position, the rider's torso is tilted toward the steering device and the rider's arms extend toward the steering device with the rider's elbows substantially over the rider's feet;

two skis disposed on the frame and operatively connected to the steering device for steering the snowmobile; and

a footrest disposed below each side of the seat, each said footrest being dimensioned and configured with respect to the seat and the steering device to support the rider's foot thereon;

wherein, for the standard rider in the standard position, the seat defines a seat position, the steering device defines a steering position, and the footrests define a footrest position,

wherein a line passing through the seat position and the steering position forms angle  $\alpha$  with a line passing through the seat position and the footrest position;

wherein a line passing through the footrest position and the steering position forms angle  $\beta$  with the line passing through the footrest position and the seat position,

wherein the line passing through the footrest position and the steering position forms angle  $\gamma$  with the line passing through the steering position and the seat position,

wherein angle  $\alpha$ , angle  $\beta$ , and angle  $\gamma$  satisfy the relationship  $\alpha \geq \beta \geq \gamma$ ; and

wherein a distance between vertical lines passing through the steering position and the seat position is between 40-90 cm.

45. (Four Times Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

a steering device disposed on the frame and spaced forward of the seat such that, when the rider grasps the steering device in the standard position, the rider's torso is tilted toward the steering device and the rider's arms extend toward the steering device with the rider's elbows substantially over the rider's feet;

two skis disposed on the frame and operatively connected to the steering device for steering the snowmobile; and

a footrest disposed below each side of the seat, each said footrest being dimensioned and configured with respect to the seat and the steering device to support the rider's foot thereon;

wherein, for the standard rider in the standard position, the seat defines a seat position, the steering device defines a steering position, and the footrests define a footrest position,

wherein a line passing through the seat position and the steering position forms angle  $\alpha$  with a line passing through the seat position and the footrest position;

wherein a line passing through the footrest position and the steering position forms angle  $\gamma$  with the line passing through the steering position and the seat position, and

wherein  $\alpha \approx 2.5\gamma$ .

46. (Four Times Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat and the rider's thighs are substantially parallel to ground while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

a steering device disposed on the frame and spaced forward of the seat such that, when the rider grasps the steering device in the standard position, the standard rider's torso is tilted toward the steering device and the rider's arms extend toward the steering device with the rider's elbows substantially over the rider's feet; and

two skis disposed on the frame and operatively connected to the steering device for steering the snowmobile;

wherein the seat defines a seat position and the steering device defines a steering position for the standard rider in the standard position, and

wherein a line passing through the steering position and the seat position forms an angle  $\phi$  with horizontal that is between 15 and 51°.

47. (Amended) The snowmobile of claim 46, wherein angle  $\phi$  is between 19 and 41°.

48. (Amended) The snowmobile of claim 47, wherein angle  $\phi$  is between 23 and 31°.

49. (Amended) The snowmobile of claim 48, wherein angle  $\phi$  is 26°.

50. – 54. (Canceled)

55. (Thrice Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

a steering device disposed forward of the seat;

two skis disposed on the frame and operatively connected to the steering shaft for steering the snowmobile; and

a windshield disposed forward of the steering device, the windshield having a top;

wherein the seat defines a seat position and the steering device defines a steering position for the standard rider in the standard position, and

wherein a line between the steering position and the seat position forms an angle  $\mu$  with a line between the seat position and the top of the windshield that lies between  $10^\circ$  and  $20^\circ$ .

56. (Canceled)

57. (Twice Amended) The snowmobile of claim 55, wherein angle  $\mu$  is  $18^\circ$ .

58. (Thrice Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;



a steering device disposed forward of the seat;  
two skis disposed on the frame and operatively connected to the steering device for steering the snowmobile; and  
a windshield disposed forward of the seat, the windshield having a top;  
wherein, when in motion, the windshield defines a laminar flow region of moving air that extends upwardly and rearwardly from the top thereof, and  
wherein, when seated in the seat and when grasping the steering device in the standard position, the rider's head is positioned within the laminar flow region.

59. (Thrice Amended) A snowmobile, comprising:

a frame including a pair of footrests;  
a straddle seat disposed on the frame;  
an engine disposed on the frame in front of the seat;  
two skis disposed on the frame;  
a forward-most drive track axle disposed on the frame forward of the pair of footrests;  
and  
a steering device disposed on the frame forward of the forward-most drive track axle, the steering device being operatively connected to the two skis for steering the snowmobile.

60. (Five Times Amended) A snowmobile, comprising:

a frame having a forward-most drive track axle disposed thereon;  
a straddle seat disposed on the frame;  
an engine disposed on the frame in front of the seat;  
two skis disposed on the frame; and  
a steering device disposed on the frame and operatively connected to the two skis for steering the snowmobile;

wherein the snowmobile has a center of gravity without a rider and the steering device is disposed on the frame forward of the center of gravity, and wherein the forward-most axle is positioned forward of the center of gravity and rearward of a rearward-most portion of the steering device such that the center of gravity is rearward of the rearward-most portion of the steering device, and

wherein the frame includes a tunnel, and the forward-most drive track axle is positioned on the tunnel.

61. – 63. (Canceled)

64. (Thrice Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard seat position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

two skis disposed on the frame; and

a steering device disposed on the frame and forward of the seat defining a steering position for the standard rider in the standard seat position, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein a distance between vertical lines passing through the steering position and the standard seat position is between 40 and 90 cm.

65. (Amended) The snowmobile of claim 64, wherein the distance is between 50 and 80 cm.

66. (Amended) The snowmobile of claim 65, wherein the distance is between 60 and 80 cm.

67. (Amended) The snowmobile of claim 66, wherein the distance is 65 cm.

68. (Amended) The snowmobile of claim 67, wherein the distance is 70 cm.

69. – 72. (Canceled)

73. (Four Times Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame;

an engine disposed on the frame in front of the seat;

two skis disposed on the frame;

a steering device disposed on the frame and operatively connected to the two skis for steering the snowmobile; and

right and left sideboards extending laterally from the frame below the seat on either side thereof, each of the sideboards having a forward portion suitable for placement of a rider's foot thereon, the forward portion of each sideboard disposed at an angle  $\Delta$  with horizontal that is  $-5^{\circ}$  to  $-10^{\circ}$ ; and

right and left toe-holds disposed respectively above the rider's toes in a vertical plane for allowing the rider to releasably secure himself to the snowmobile.

74. – 76. (Canceled)

77. (Thrice Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

a drive track operatively coupled to the engine, the drive track including a belt entrained about at least two axles, including a forward-most axle;

two skis disposed on the frame;

a steering device disposed on the frame forward of the seat and operatively connected to the two skis for steering the snowmobile; and

right and left sideboards extending laterally from the frame below the seat on either side thereof, each of the sideboards having a forward portion suitable for placement of a rider's foot thereon,

wherein, for the standard rider in the standard position, the seat defines a seat position, the steering device defines a steering position forward of the forward-most axle of the drive track, and the forward portions of the sideboards define a footrest position,

wherein a line passing through the seat position and the steering position forms angle  $\alpha$  with a line passing through the seat position and the footrest position;

wherein a line passing through the footrest position and the steering position forms angle  $\beta$  with the line passing through the footrest position and the seat position,

wherein the line passing through the footrest position and the steering position forms angle  $\gamma$  with the line passing through the steering position and the seat position, and

wherein angle  $\alpha$  is between 63 and 152°, angle  $\beta$  is between 16 and 84°, and angle  $\gamma$  is between 11 and 42°.

78. (Amended) The snowmobile of claim 77, wherein angle  $\alpha$  is between 67 and 112°, angle  $\beta$  is between 41 and 72°, and angle  $\gamma$  is between 22 and 45°.

79. (Amended) The snowmobile of claim 78, wherein angle  $\alpha$  is between 75 and 97°, angle  $\beta$  is between 52 and 67°, and angle  $\gamma$  is between 30 and 41°.

80. (Amended) The snowmobile of claim 79, wherein angle  $\alpha$  is  $83^\circ$ , angle  $\beta$  is  $64^\circ$ , and angle  $\gamma$  is  $33^\circ$ .

81. (Four Times Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

two skis disposed on the frame;

a steering device operatively connected to the two skis, the steering device being spaced forward of the seat such that, when the rider grasps the steering device in the standard position, the standard rider's torso is tilted toward the steering device and the rider's arms extend toward the steering device with the rider's elbows substantially over the rider's feet; and

a sideboard extending laterally from the frame below each side of the seat, each said sideboard having a forward portion dimensional and configured with respect to the seat and the steering device to support a rider's foot thereon,

wherein, for the standard rider in the standard position, the seat defines a seat position, the steering device defines a steering position, and the forward portion of each said sideboard defines a footrest position,

wherein a line passing through the seat position and the steering position forms angle  $\alpha$  with a line passing through the seat position and the footrest position;

wherein a line passing through the footrest position and the steering position forms angle  $\beta$  with the line passing through the footrest position and the seat position,

wherein the line passing through the footrest position and the steering position forms angle  $\gamma$  with the line passing through the steering position and the seat position, and

wherein angle  $\alpha$ , angle  $\beta$ , and angle  $\gamma$  satisfy the relationship  $\alpha \geq \beta \geq \gamma$ .

82. (Four Times Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame, the seat being dimensioned to support a standard rider in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male;

an engine disposed on the frame in front of the seat;

two skis disposed on the frame;

a steering device operatively connected to the two skis, the steering device being spaced forward of the seat such that, when the rider grasps the steering device in the standard position, the standard rider's torso is slightly tilted toward the steering device and the rider's arms extend toward the steering device with the rider's elbows substantially over the rider's feet; and

a sideboard extending laterally from each side of the frame below the seat, each said sideboard having a forward portion dimensioned and configured with respect to the seat and the steering device to support a rider's foot thereon,

wherein, for the standard rider in the standard position, the seat defines a seat position, the steering device defines a steering position, and the forward portions of the sideboards define a footrest position,

wherein a line passing through the seat position and the steering position forms angle  $\alpha$  with a line passing through the seat position and the footrest position;

wherein a line passing through the footrest position and the steering position forms angle  $\gamma$  with the line passing through the steering position and the seat position, and

wherein  $\alpha \approx 2.5\gamma$ .

83. (Original) The snowmobile of any one of claims 77 to 82 further comprising:  
right and left toe-holds disposed respectively above the forward portion of each sideboard for allowing the rider to releasably secure himself to the snowmobile.

84. (Added) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard load having dimensions and weight of a 50-percentile human male, the load having a center of gravity in a standard position in which the standard load straddles the seat while the snowmobile is on flat terrain;

a footrest positioned on each side of the seat; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the seat, each said footrest and the steering device are positioned and dimensioned with respect to one another so that the snowmobile 1) has a first center of

gravity without the standard load and 2) has a second center of gravity when the standard load is in the standard position, and

wherein a distance between a vertical line passing through the first center of gravity and a vertical line passing through the second center of gravity is between 0 cm and 14 cm.

85. (Added) A snowmobile having a center of gravity without a rider, comprising:

a frame including a pair of footrests each defining a forward-most surface, the frame including a tunnel defining an upper-most surface;

a straddle seat disposed on the frame;

an engine disposed on the frame in front of the seat;

two skis disposed on the frame; and

a forward-most drive track axle disposed on the frame forward of the pair of footrests and forward of the center of gravity,

wherein an angle between a line passing through the forward-most drive track axle and the center of gravity and a horizontal line passing through the forward-most drive track axle is less than 55°;

wherein the center of gravity is positioned below the upper-most surface of the tunnel, and

wherein the center of gravity is positioned in substantial alignment with the forward-most surface of each of said pair of footrests.

86. (Amended) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame;

an engine disposed on the frame in front of the seat;

two skis disposed on the frame;



right and left sideboards extending laterally from the frame below the seat on either side thereof, each of the sideboards having a forward portion disposed at an angle  $\Delta$  with horizontal that is  $-5^{\circ}$  to  $-10^{\circ}$ ; and

right and left toe-holds associated with the right and left sideboards to allow the rider to releasably secure himself to the snowmobile.

87. (Added) A snowmobile, comprising:

a frame;

an engine disposed on the frame;

a drive track disposed below the frame and connected operatively to the engine for propulsion of the snowmobile;

two skis disposed on the frame;

a straddle seat disposed on the frame behind the engine, the seat being dimensioned to support a standard rider with a center of gravity in a standard position in which the standard rider straddles the seat while the snowmobile is heading straight ahead on flat terrain, the standard rider having dimensions and weight of a 50-percentile human male; and

a steering device disposed on the frame forward of the seat, the steering device being operatively connected to the two skis for steering the snowmobile,

wherein the snowmobile has a first center of gravity without the rider and wherein the snowmobile is adapted to have a second center of gravity with the rider in the standard position such that, in use, a distance between a vertical line passing through the first center of gravity and a vertical line passing through the second center of gravity is between 0 cm and 14 cm.

88. (Added) The snowmobile of claim 40, further comprising a tunnel and an endless drive track housed within the tunnel, the endless drive track being operatively coupled to the engine.

89. (Canceled)

90. (Added) A snowmobile, comprising:

a frame;

a straddle seat disposed on the frame;

an engine disposed on the frame in front of the seat;

a steering device disposed on the frame and spaced forward of the seat;

two skis disposed on the frame and operatively connected to the steering device for steering the snowmobile; and

a footrest disposed below each side of the seat;

wherein, for the standard rider in the standard position, the seat defines a seat position, the steering device defines a steering position, and the footrests define a footrest position,

wherein a distance between vertical lines passing through the steering position and the seat position is between 40-90 cm.

91. (Canceled)

92. (Twice Amended) An assembly comprising:

a frame including a tunnel;

a straddle seat mounted on the frame;

an engine disposed on the frame in front of the seat;

two skis disposed on the frame;

a steering shaft operatively connected to the two skis, the steering shaft being disposed over the engine at an angle  $\epsilon$  of between 25° and 40° from vertical;

wherein the tunnel supports a drive belt coupled to the engine and defines a footrest on each side of the seat that is inclined at an angle  $\Delta$  with horizontal that is between  $0^\circ$  to  $-10^\circ$ ; and

wherein a forward-most axle of the drive belt is positioned rearward of the steering shaft.